Comment

Samuel W. Greenhouse

Mr. Everitt has been closely associated with psychiatric research in his role as a statistician in the Psychiatric Institute. His discussion clearly reflects his experiences and insights in dealing with psychiatrists who reluctantly have to learn statistical methods in order to analyze their data or with those psychiatrists who, having learned statistics, overemphasize significance tests, are "obsessed" with .05 and .01, and at times misuse statistical procedures. Everitt points out that increasingly, more advanced techniques such as log-linear models, logistic regression, and survival analysis (Cox proportional hazard models), among others are being applied in psychiatric research. In connection with survival analysis models, he presents two examples wherein he persuaded the investigators to analyze all their data, both censored as well as uncensored, utilizing a proportional hazards model. (In the second example, where the dependent variable is duration of hospitalization and observations of patients still in the hospital are considered as censored, it is difficult to see how one can assume the censoring mechanism to be independent of the outcome variable: time to hospital discharge.) Of interest are the topics the author seems to favor: greater use of exploratory data analysis, introduction and use of concepts such as support, lack of support, weak support, and use of statistical evidence to adjust degrees of belief. The author also presents an interesting approach to teaching statistics to psychiatrists.

As we think about these issues, we wonder what is there about them that warrants a special article on statistics and psychiatry. Everitt is not alone in having written on the subject. In fact there have been a number of such papers published in the past twenty years among which are DeGroot and Mezzich (1985), Garside and Roth (1978), Hand (1985), Laska, Seigel and Meisner (1985), Moran (1969), and Pocock (1980). All of these papers discuss some aspects of statistical methodology as applied to psychiatric research. Although some authors imply something different about the kind of procedures needed in psychiatry only DeGroot and Mezzich directly consider this issue. They ask: "In particular why is psychiatric statistics not just a branch of biostatistics or psychometrics, the

areas of statistics that deal with biomedical and behavioral issues, respectively?" They then respond: "A glib but reasonably accurate answer to this question is that biostatistical methods are typically inadequate for handling the behavioral components of problems in psychiatric statistics, and the psychometric methods are typically inadequate for handling the biomedical components." DeGroot and Mezzich then note that most of the psychiatric literature uses little methodology beyond classical methods and that this is a propitious time for the application of more modern techniques, "suitably modified where required" and for the development of new "theory and methodology to keep pace with and spur new developments in psychiatric research." This theme of the need for more modern techniques occurs in other papers. Indeed, as Everitt points out, some of these, log linear models, logistic regression, survival analysis, have already been instituted.

Although the reader will not find in Everitt's paper what makes statistics in psychiatric research different from the statistics applied in other areas, neither will he find it in the other articles. It is true that DeGroot and Mezzich declare it is different and discuss some of the differences, but they do not indicate why it is or should be different other than the classical procedures used are inadequate and presumably the newer techniques will somehow be adequate.

As one who was closely associated with research in psychiatry, psychology, and the social sciences from 1954 to 1974, I am acutely aware of the force of these arguments. There is no question that psychiatric statistical methods should be strengthened. There exist a number of data collection methods that are indeed peculiar to psychiatry and to the entire rubric of social and behavioral sciences dealing with the assessment of personality, attitude, and behavior. But, except possibly for the major issue of classification and diagnosis, the problems in analysis and inference are not too much different in psychiatry from those occurring in any of the other chronic diseases such as cancer, heart diseases, arthritis, etc. The problems of overuse of .05 and .01 significance testing and the need for newer techniques especially in categorical repeated measurements occur in these other areas also. Even some elements of the classification problem occur currently in heart disease research, as witness the uncertainties and ambiguities connected with evaluating cardiac arteriograms. We do not, however, see

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